

MARITIME HERITAGE MINNESOTA



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Minnesota Suburban Lakes Nautical Archaeology I Project: Lake Pulaski



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Ann Merriman, Christopher Olson, and Maritime Heritage Minnesota

Acknowledgments

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Maritime Heritage Minnesota Staff, Volunteers, Board of Trustees, & Mascots



"ACHF grants have allowed a small St. Paul-based nonprofit, Maritime Heritage Minnesota (MHM), to re-establish the discipline of underwater archaeology in Minnesota. Without this support, MHM could not have conducted its groundbreaking nautical archeological and maritime historical research."

~Steve Elliott, Minnesota Historical Society CEO and Director, January 2015

Introduction

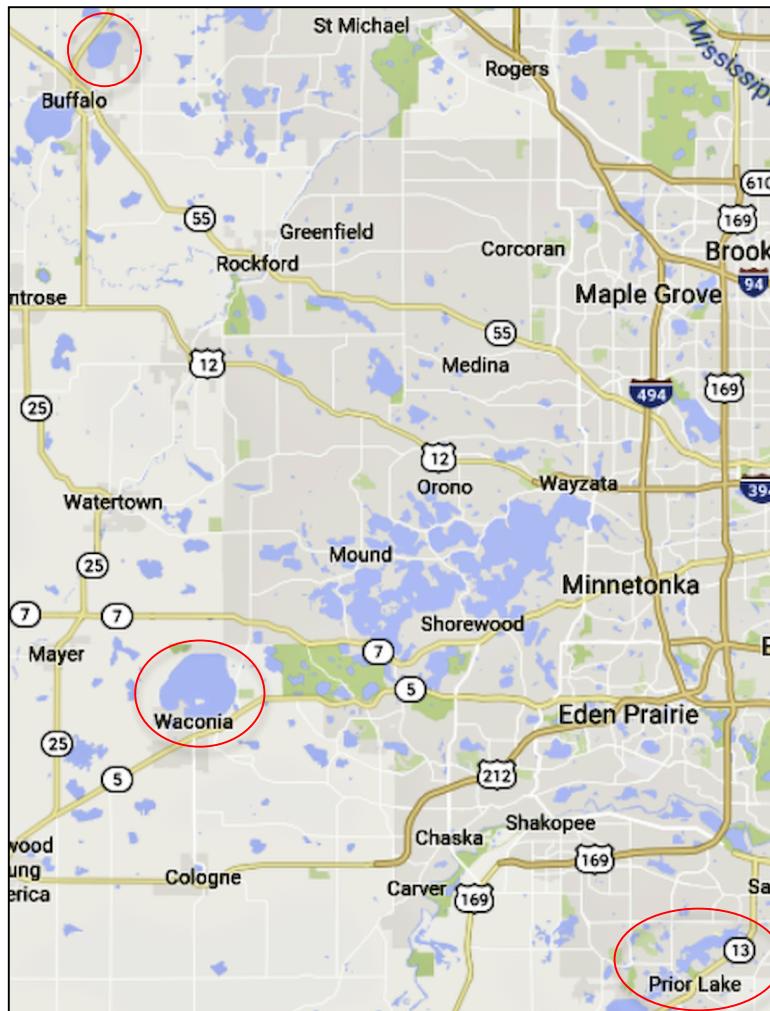
Wrecks and the artifacts associated with them tell a story. Removing or otherwise disturbing artifacts, treating them as commodities that can be sold, obliterates that story. Nautical archaeological and maritime sites are finite, and are significant submerged cultural resources. Nautical, maritime, underwater, maritime terrestrial – Maritime Heritage Minnesota's (MHM) deals with all of these types of sites throughout the State of Minnesota. MHM's Mission is to document, conserve, preserve, and when necessary, excavate these finite cultural resources where the welfare of the artifact is paramount. MHM is concerned with protecting our underwater and maritime sites – our shared Maritime History – for their own benefit in order for all Minnesotans to gain the knowledge that can be obtained through their study. MHM's study of wrecks does not include the removal of artifacts or damaging the sites in any way. MHM does not raise wrecks or 'hunt' for 'treasure'. Submerged archaeological sites in Minnesota are subject to the same State statutes as terrestrial sites: the Minnesota Field Archaeology Act (1963), Minnesota Historic Sites Act (1965), the Minnesota Historic District Act (1971), and the Minnesota Private Cemeteries Act (1976) if human remains are associated with a submerged site. Further, the case of *State v. Bollenbach* (1954) and the Federal Abandoned Shipwrecks Act of 1987 provide additional jurisdictional considerations when determining State oversight and "ownership" of resources defined by law as archaeological sites (Marken, Ollendorf, Nunnally, and Anfinson 1997, 3-4). Therefore, just like terrestrial archaeologists working for the State or with contract firms, underwater archaeologists are required to have the necessary education, appropriate credentials, and hold valid licenses from the Office of the State Archaeologist (OSA).



MHM completed a remote sensing side and down imaging sonar survey of Lake Waconia (3,080 acres) in 2012. In 2016 during the Minnesota Suburban Lakes Survey Project (MSLS), MHM surveyed Upper and Lower Prior Lake (PL, 1,238 acres), and Lake Pulaski (LP, 702 acres).¹ Prior to MHM's comprehensive surveys, there were no recognized nautical archaeological or maritime sites on bottoms of these suburban lakes.

Preface

During the Minnesota Suburban Lakes Nautical Archaeology 1 Project (MSLNA-1), MHM investigated 5 anomalies in Lake Waconia in Carver County, 10 anomalies in Lake Pulaski in Wright County, and 14 anomalies in Prior Lake in Scott County in order to answer specific questions about their natures. The fieldwork was conducted from mid-August to early September 2017.



The locations of the 3 lakes where MHM investigated 28 Anomalies during the MSLNA-1 Project.

¹During the MSLS Project MHM also surveyed Lake Sylvia (LS, 1,524 acres), Medicine Lake (ML, 886 acres), Lake Johanna (LJ, 213 acres), and Lake Elmo (LE, 206 acres).

Results of the Minnesota Suburban Lakes Nautical Archaeology 1 Project

Research Design

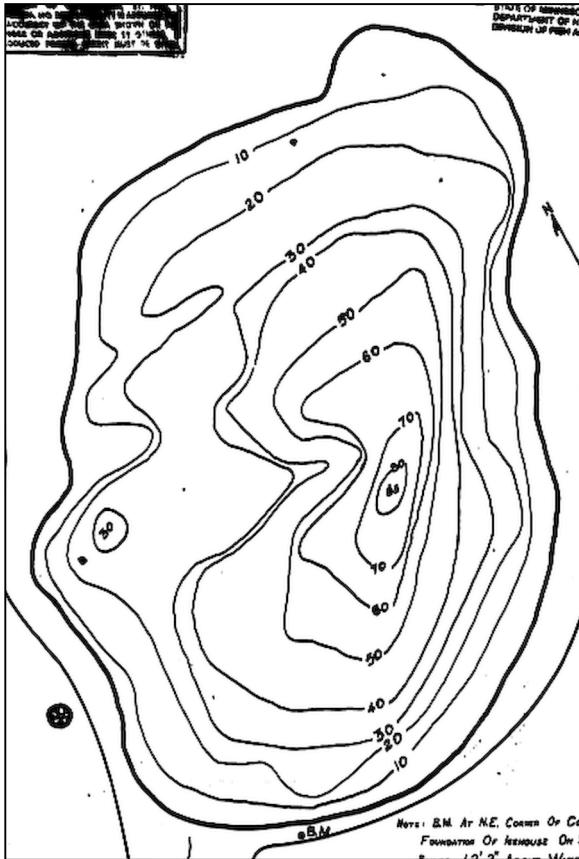
The purpose of the MSLNA-1 Project was to answer questions about and determine the nature of specific unknown anomalies in order to increase the collective maritime archaeological and historical knowledge of Minnesotans. MHM determined which anomalies would be investigated from an analysis of sonar data that suggested they were submerged cultural resources. Each anomaly was assigned a number upon its recognition as a possible site. During the MSLNA-1 Project, MHM examined 5 anomalies in Lake Waconia, 10 anomalies in Lake Pulaski, and 14 anomalies in Prior Lake. Using data accumulated from the fieldwork as a starting point, MHM conducted research to place newly recognized nautical archaeological sites and anomalies into their historical contexts. Minnesota Archaeological Site Forms were filed with the OSA when appropriate.

Methodology

The methodology used to identify and rudimentarily document underwater archaeological anomalies is straightforward. MHM used the GPS coordinates of an anomaly to drop a weighted diver down buoy near the target. The dive boat anchored a short distance away from the buoy and divers geared up for the dive. At any given time, there were between two and four divers underwater. If the buoy anchor weight landed near and sometimes on the anomaly or wreck, no search for the target was conducted. However, for a variety of reasons, a brief search for the target was conducted until it was located or it was determined that the anomaly was a false sonar return. If a cultural or natural resource was located, the divers photographed and recorded video of the site or object, logged its basic measurements, examined any obvious attributes, and measured sediment build-up (if appropriate). After the completion of the MSLNA-1 Project fieldwork in early September 2017, there is now 1 identified wreck on the bottom of Lake Waconia, 7 wrecks and 1 object in Lake Pulaski, and 3 wrecks, 3 maritime sites or objects, and 2 ‘other’ site types on the bottom of Prior Lake. The anomalies were identified through underwater archaeological reconnaissance fieldwork using SCUBA, digital video, measured drawings, and maritime historical research. Of these 11 wrecks, 3 of them now have Minnesota archaeological site numbers.

Lake Pulaski Project Results

MHM identified 47 anomalies in Lake Pulaski in the side and down imaging sonar footage recorded during the MSLS-1 Project in 2016. In late August and early September 2017, MHM returned to Lake Pulaski and investigated 10 anomalies (A1, A2, A13, A17, A27, A32, A36, A38, A39, A43), identifying 7 wrecks, 1 object, and 2 false targets.



Lake Pulaski (State of Minnesota Department of Conservation 1960).

Flat Bottomed Rowboat Wreck Site, 21-WR-203 (Anomaly 1)

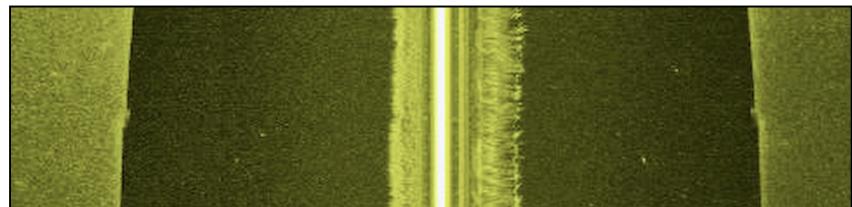
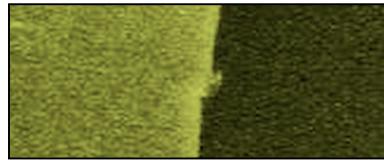
MHM recorded a sonar image of the Flat Bottomed Rowboat Wreck during the MSLS-1 Project in August 2016 and identified Anomaly 1 in early September 2017. The wreck's hull is 15.00 feet long but its over-all length is 15.30 feet including its anchor roller. Anomaly 1 is 3.20 feet wide in the beam and it narrows considerably at the transom; it measures 1.60-feet wide at the stern. The hull is carvel-built and sturdy, with thick plank widths, indicating the boat was heavily built. The round-topped transom is raked aft and has a rectangular plank support attached on the outside of the hull. The transom joins with the port and starboard quarters by simply butting up against them, with no overlapping joins to increase stability. Anomaly 1 has a keel, visible at the stern. The flat bottom is athwartships planked and there is a hull extension at the stern. The extension increases the wreck's length at the water line (LWL), thus allowing the small boat to handle more like a larger vessel without adding too much weight to the hull. Anomaly 1's over-all design is interesting and similar to a Lake Minnetonka wreck, also known as the Flat Bottom Rowboat Wreck (21-HE-488). The sharply-pointed and steeply-raked bow of Anomaly 1, like the bow of 21-HE-488, is unlike the other small wooden wrecks identified by MHM in the last 7 years. The other wrecks, in Lake Minnetonka and Prior Lake, have plumb (vertical) or nearly plumb bow rakes while the

construction and design of the Flat Bottomed Rowboat Wreck's bow is distinctively different.

The anchor roller protrudes forward from the stempost. A substantial rubrail survives on the port and starboard gunwales from the bow to amidships; the rubrail disappears at that point but a portion exists on the starboard quarter. A long thin metal strip is attached to the hull on the port side below the rubrail and acted as a fender when the boat is moored to a dock; it is missing on the starboard side. An oarlock is attached to the gunwale by a curved piece of wood on the port side; it is missing on the starboard side. A wide bench is fitted into the stern, held up by small stringers attached to the inside hull. Another small stringer is extant on the inner port side hull under the oarlock, and a bench comprised of two pieces lies inside the hull near its port side support stringer. Remarkably, there is no evidence of frames and futtocks as part of the boat's construction; this missing attribute cannot be explained at this time. MHM contends Anomaly 1 was constructed in the early 1900s prior to 1915 based on its construction and design attributes. Further, it likely sank before 1920 since these small craft were often constructed of inexpensive materials and were not long-lived. MHM submitted an archaeological site form for the Flat Bottomed Rowboat Wreck to the OSA in mid-October 2017 and received her site number, 21-WR-203, at that time.



MHM's sonar image of the Flat Bottomed Rowboat Wreck (21-WR-203). During the survey, MHM's research boat Anomaly 51 passed directly over the top of the wreck and the acoustical signature was 'cut in two'. The bow and stern can be distinguished, however.



The Flat Bottomed Rowboat Wreck (Kelly Nehowig).



Above and Right; The raked bow and anchor roller (Ed Nelson).



The fallen bench (Kelly Nehowig).



The bench and oarlock supports on the inner port side of the hull (Kelly Nehowig).

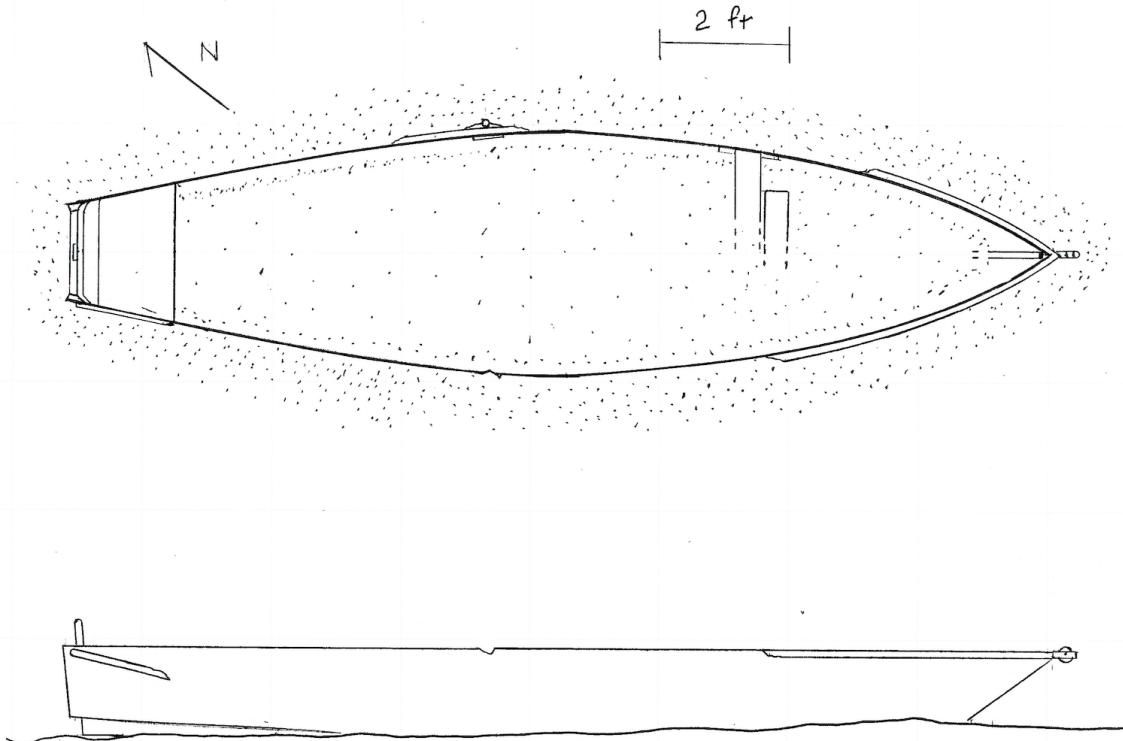


Above: The port side oarlock and support (Ed Nelson).

Right: The stern bench and inside transom (Kelly Nehowig).



Looking at the stern off the starboard quarter. Note the raking stern, wood support, partially dislodged gunwale, and the hull extensioin. The wreck sits off the lake bottom slightly due to the keel (Ed Nelson).



A sketch of the Flat Bottomed Rowboat Wreck (21-WR-203, Christopher Olson).



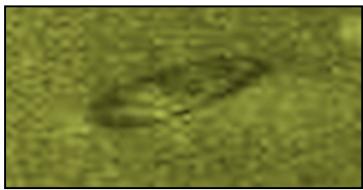
A small Minnesota boat that resembles the Flat Bottomed Rowboat Wreck, although it is larger than Anomaly 1. Note the people in are paddling the boat, not rowing. This photo was taken prior to 1915 (MNHS GV3.61r31, digitized by MHM).

Homemade Steel Boat Wreck Site (Anomaly 13)

MHM recorded a sonar image of Anomaly 13 in August 2016 during the MSLS-1 Project and identified the Homemade Steel Boat Wreck in late August 2017. The hull of Anomaly 13 is 15.50 feet long, 4.00 feet in the beam, and 2.80 feet at the transom. Made of steel, the hull has a pointed bow, a stempost that disappears into the silt, and a towing loop made from a wide strap. A small triangular foredeck is seen at the bow, with 3 benches further aft supported by wooden stringers attached to the inner hull on both port and starboard. The broad forward bench and the large stern bench are fabricated from wooden wainscoting; an athwartships wooden bulwark supports the stern bench. The bulwark is comprised of 2 pieces of wood; the top piece is painted blue and the lower piece appears to be painted light brown. The inside of the hull is reinforced with steel frames. MHM contends there is a keel as suggested by the existence of the stempost, but it is obscured by silt. Anomaly 13 has an intact gunwale and a square transom with triangular wood reinforcements at the corners. A wooden rubrail, painted white, is attached to the gunwale and is damaged on the starboard side. Two metal oarlocks survive on the port side but they are missing on the starboard due to the gunwale damage. The wreck once carried a small outboard motor; evidence of the motor survives in the form of a wooden motor board attached to the outer hull on the transom.

Anomaly 13's registration number is MN 2362 BD. DNR records indicate she was homemade of steel in 1956 (John Nordby, personal communication, September 2017), although her registration was assigned in 1962;² the boat was likely not motorized between 1959 and 1961 (non-motorized watercraft did not need registration numbers when the boating act was implemented on July 1, 1959). MHM contends the Homemade Steel Boat Wreck was scuttled intentionally around 1990. The last registration for the boat expired in December 1990, indicating the vessel had a long life on Lake Pulaski. Evidence of 5 Minnesota-shaped validation stickers can be seen on the port and starboard bow. The stickers are blue, orange, green, and red; in one case, there is a red sticker with a green 1973-74-75 sticker on top of it and a partial red stick on top of the green. The DNR has supplied MHM with a significant amount of research on the changing colors of boat registration stickers. MHM contends the first red sticker is from 1970-71-72, on top of that is the green sticker from 1973-74-75, and the damaged red sticker on top of that is either from 1982-83-84 or it could be the last sticker the boat received, from 1988-89-90. The orange and blue stickers are too damaged to read and validations of those colors appeared many times from 1962-1990. The 1956 Homemade Steel Boat Wreck cannot be categorized as an archaeological site at this time, but she is a State and Federally protected maritime historical resource.

²Through research, MHM has determined that the registration letter series BA-BH were assigned to Minnesota boats in 1962.



Above: MHM's sonar image of Anomaly 13.



The port and starboard bow of Anomaly 13 showing the towing loop, partial registration number, and validation stickers (Mark Slick).



The port side (above) and bow (left) of Anomaly 13 (Mark Slick).



Anomaly 13 is not identical to the 1932 Mullins Lark, but it is similar. The homemade nature of Anomaly did not allow for the curved sheerline (Mullins 1932).



The simple level gunwale, motor board, and white paint on the rubrail of Anomaly 13 (Mark Slick).



Inner hull frames, stringer, and a bench seat (Mark Slick).



Above: Looking toward the stern showing the bulwark holding up the large stern bench. Note the blue paint (Mark Slick).

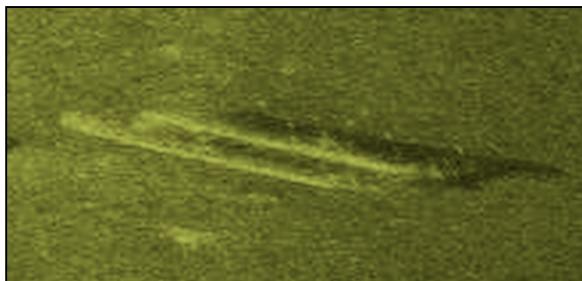
Right: The large stern bench is a piece of wainscoting. Note the corner braces on the port and starboard stern (Mark Slick).



Capsized Pontoon Boat Wreck 1 Site (Anomaly 32)

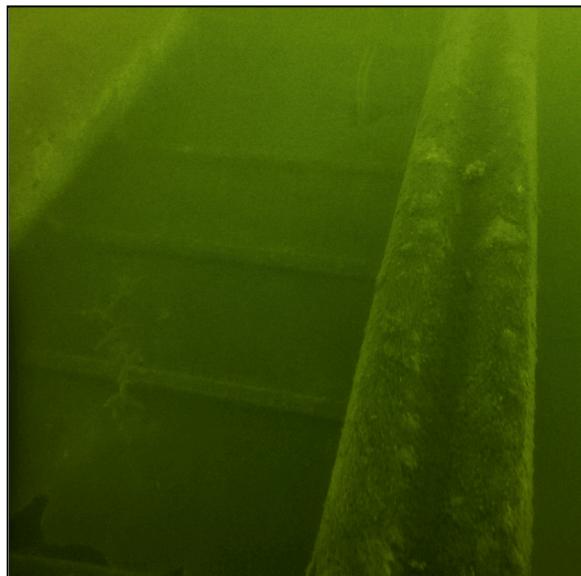
MHM recorded a sonar image of Anomaly 32 in August 2016 during the MSLS-1 Project and identified the Capsized Pontoon Boat Wreck 1 in late August 2017. Anomaly 32 is 23.40 feet long and 8.50 feet in the beam. The pontoons are round in cross-section at the stern and pointed – with blunt ends – at the bow, and painted white. The pointed ends of the pontoons have wings attached to them for smoother movement through the water and to act as splash rails. Anomaly 32's deck platform is a wooden rectangle with separate rectangular appendages attached at the stern, overhanging the pontoons. The platform narrows at the bow. The deck is held together with metal components and is comprised of athwartships white painted wooden planks attached to frames. The side of the platform at the bow is painted light blue. The platform is connected to the pontoons through square holes cut into the top face of the pontoons and wooden supports are inserted into the holes. A white metal railing is fitted to the deck around $\frac{3}{4}$ of the aft perimeter of the platform and attached to it by stanchions - the railing is the part of the wreck resting on the lake bottom. The forward platform section is separated from the aft portion of the deck by a railing stanchion, creating a foredeck; at this point the higher

railing ends and a low railing is found around the bow. The port side bow section of the low railing has dislodged; the deck is slightly damaged as well. This area is the only portion of the wreck that exhibits damage. At the stern, a rectangular hollow box is attached to the deck and might assist in the attachment of the outboard motor, although there is no outboard with the wreck. MHM could not discern a Minnesota registration number on Anomaly 32, but a faded orange or red Minnesota-shaped validation sticker is visible on the pointed section of the port pontoon. At this point, MHM can say Anomaly 32 was constructed sometime between 1952-1962 and sank after 1962.³ Further historical research is required into the wreck's manufacture and working life on Lake Pulaski in order to tell this boat's specific story. The Capsized Pontoon Boat Wreck 1 will not be categorized as an archaeological site at this time, but she is a State and Federally protected maritime historical resource.

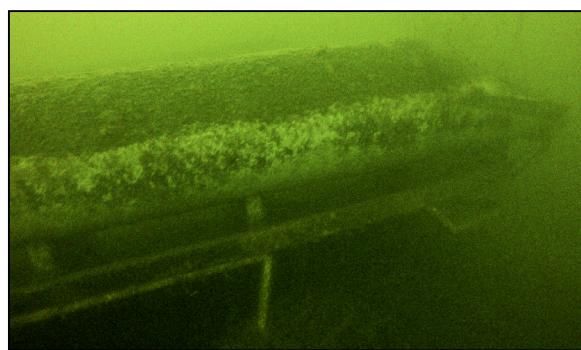


Above: MHM's sonar image of the Capsized Pontoon Boat Wreck 1 (Anomaly 32).

Right: Looking toward the stern of Anomaly 32 – the starboard pontoon (left), the port pontoon on (right), and the athwartships beams supporting the deck platform (Mark Slick).



The port side quarter pontoon - note the profuse amount of vegetation on the wreck (Mark Slick).



The port pontoon near the bow (Mark Slick).

³The reasoning behind these assertions stems from the style of Anomaly 32's construction, particularly where the square platform supports enter the pontoons. This attribute is typical of early Weere's pontoon boats beginning in 1952 and Weere's was the first company to successfully mass-produce and sell pontoon boats. The date of 1962 relates to the colors of validation stickers and when they were first required on boats. The first validation stickers were used in 1962 and they were black. Therefore, Anomaly 32 sank after 1962.



The port side bow. Note the faded Minnesota-shaped validation sticker on the left and the mooring lines floating in the water column on the right (Mark Slick).



The bow platform, painted light blue (Mark Slick).



Deteriorating wood of the platform (Mark Slick).



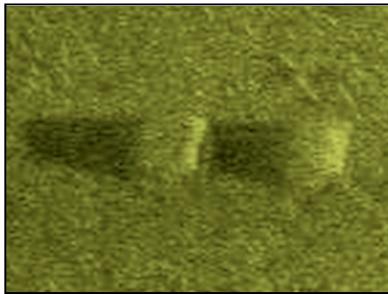
Left: Underneath the capsized wreck (Mark Slick).

Below: Anomaly 32 would have resembled this Minnesota-built Nationalwide Industries of Forest Lake pontoon boat from 1962 – note the registration number (Postcard).



Capsized Pontoon Boat Wreck 2 Site (Anomaly 38)

MHM recorded a sonar image of Anomaly 38 in August 2016 during the MSLS-1 Project and identified the Capsized Pontoon Boat Wreck 2 in early September 2017. Anomaly 38 is 15.20 feet long and 8.30 feet in the beam. The pontoons are round in cross-section at the stern with concave ends, and pointed at the bow. The pointed ends of the pontoons have wings attached to them for smoother movement through the water and to act as splash rails. The tops of the pontoons have rectangular brackets attached to them and in turn, the brackets are attached to the deck platform. The deck platform is entirely buried in the silt. No Minnesota registration numbers can be seen on Anomaly 38. Therefore, it cannot be determined the manufacturer of the Capsized Pontoon Boat Wreck 2 nor when she sank. However, the port side pontoon has a large gash in its side, damage that could sink the boat. It cannot be determined if this gash occurred intentionally or by accident. Archaeological questions would be answered if the pontoon platform were dredged out. MHM will not be categorized as an archaeological site at this time, but she is a State and Federally protected maritime historical resource.



MHM's sonar image of the Capsized Pontoon Boat 2 Wreck, Anomaly 38.



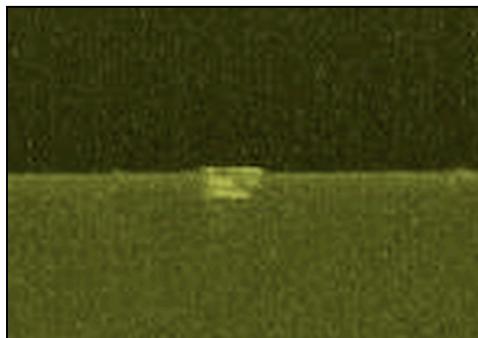
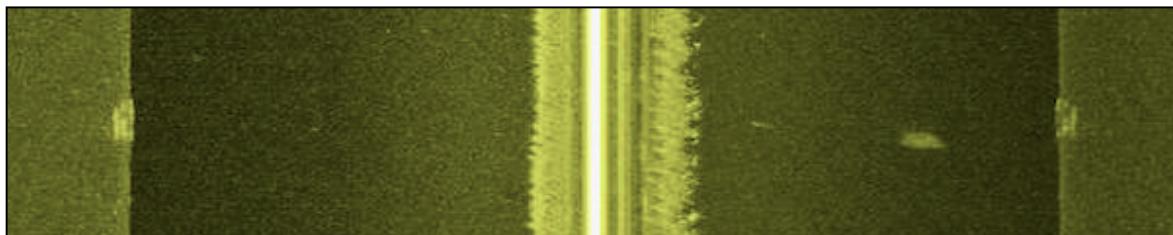
The stern (left) and the bow (above) of the port side pontoon (Ed Nelson).



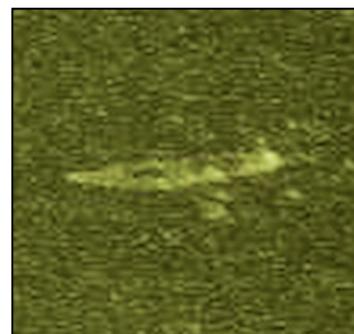
The gash in the port side pontoon (above) and a bracket (left) that attached the pontoon to the platform. Note the blue paint (Kelly Nehowig).

Fiberglass Outboard Boat Wreck Site (Anomaly 36)

MHM recorded a sonar image of Anomaly 36 in August 2016 during the MSLS-1 Project and identified the Fiberglass Outboard Boat Wreck in early September 2017. The hull of Anomaly 36 is 11.50 feet long and 4.30 feet in the beam. The hull has a pointed bow with an aluminum casting with a lifting handle. A small triangular front seat and 2 seats further aft are molded out of fiberglass. The gunwale is intact and it has an extruded aluminum caprail with 2 oarlocks, although the caprail is missing on the transom and port quarter. The starboard side aluminum stern casting and lifting handle is extant (a short piece of roped is tied to the handle), but the port side example is missing. Anomaly 36's registration number is MN 7426 BB, a designation assigned by the State of Minnesota in 1962. On both port and starboard, 2 Minnesota-shaped validation stickers survive, 1 yellow (that is now white) and 1 red; they are illegible.⁴ DNR records indicate Anomaly 36 is a 14-foot 1964 Alumacraft boat whose registration number expired in December 2012 (John Nordby, personal communication, September 2017). Since MN 7426 BB is a 1962 number, it is not possible for a 1964 boat to have that number if the process was done correctly. Anomaly 36 has been on the bottom of Lake Pulaski much longer than 5 years as the 2012 expiration date would suggest. Further, Minnesota registration stickers changed their shape in 1987 from state-shaped to square-shaped. MHM contends the registration number from Anomaly 36 was improperly assigned to an Alumacraft boat, probably in the late 1960s. The registration number likely reflects the construction date of the boat – 1962. The lack of an outboard motor and the poor condition of the transom suggests to MHM that the boat was intentionally scuttled. At this time it is unknown when the Fiberglass Outboard Boat Wreck sank and many questions remain about her identity. Anomaly 36 will not be categorized as an archaeological site at this time, but she is a State and Federally protected maritime historical resource.



MHM's side and down sonar images of Anomaly 36. MHM's research boat initially crossed directly over the top of the wreck, 'splitting the wreck in two'. Another pass with the boat to the side of the wreck produced the image to the left.



⁴Minnesota validation stickers from 1964-65 are yellow and the 1965-66-67 stickers are red. These stickers make sense for Anomaly 36 if the Alumacraft received that number in the 1960s.



Above: Anomaly 36's registration number and validation stickers (Ed Nelson).

Left: The port bow with an aluminum bow casting with a carrying handle and the molded front seat (Kelly Nehowig).



Two hull repairs on the starboard side of Anomaly 36 (Kelly Nehowig).



The port side oarlock and the extruded aluminum caprail (Ed Nelson).



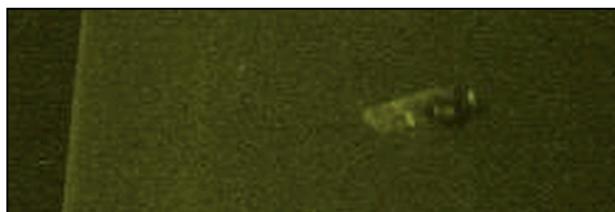
Above: The transom and port stern without the caprail (Kelly Nehowig).

Left: The starboard stern carrying handle (Kelly Nehowig).

Royal American Surfmaster 15 Wreck Site (Anomaly 17)

MHM recorded a sonar image of Anomaly 17 in August 2016 during the MSLS-1 Project and identified the Royal American Surfmaster 15 Wreck in mid-August 2017. The fiberglass hull of Anomaly 17 is 15.30 feet long and 5.30 feet in the beam. The hull has a wide and blunt bow with a towing eye attached to the stem and a navigation light on the gunwale. The Surfmaster 15 is a bowrider, meaning the wreck has an open bow that allowed people to ride up front. High railings are attached on the port and starboard bow, although the port example is loose. Cleats are found on both sides as well, and on the starboard side, a large horn is extant. A long mooring line is attached to the starboard side cleat – and its end is frayed and broken. The bow, with its wide construction, has a wide gunwale that served as a small deck. The windshield is a walk-through design and it appears the wreck has back-to-back seats for 4 people. Anomaly 17 has an inboard/outboard engine. Beyond these details, MHM could not discern the exact fitting-out of the Surfmaster 15 because the wreck still has its storage cover attached to it by snaps. Many of the bow cover's snaps have come loose and the part of the cover attached to the lower edge of the windshield has torn. The amidships cover is still snapped to the windshield and this piece did double-duty as part of a soft light blue and white cabin top that is snapped to the windshield and is supported with an aluminum frame amidships. The aft portion of the cover is snapped onto the amidships cover and snapped onto the gunwale at the stern. In places the snaps have come loose and the inside hull is exposed, but in the aft section, the cover is in place. The hull is red on the bottom, the big broad gunwale is white, and a white stripe extends the length of the hull.

Anomaly 17's registration number is MN 4913 DA; in the DNR records, the boat is listed as a '1972 Roya 15' with a validation expiration date of December 1974 (John Nordby, personal communication, September 2017). Research located other examples of Royal American fiberglass boats and this investigation confirmed the wreck's identification. The only year validation sticker on the hull is a yellow Minnesota-shaped example that dates to 1972-73-74. This sticker, combined with the validation expiration of December 1974 recorded by the DNR, confirms that Anomaly 17 sank between 1972 and the end of the boating season in 1974. MHM contends the Surfmaster 15 was forced from its dock during a storm and sank. Evidence that supports this theory includes the torn mooring line, the validation sticker, and more than any other attribute – the still-attached boat cover. A storm with 100+ mph winds moved through Wright County on June 18, 1974 (NOAA 1974, 14); this gale, or a similar strong wind, may have been responsible for the sinking of the Royal American Surfmaster 15 Wreck. Anomaly 17 will not be categorized as an archaeological site at this time, but she is a State and Federally protected maritime historical resource.



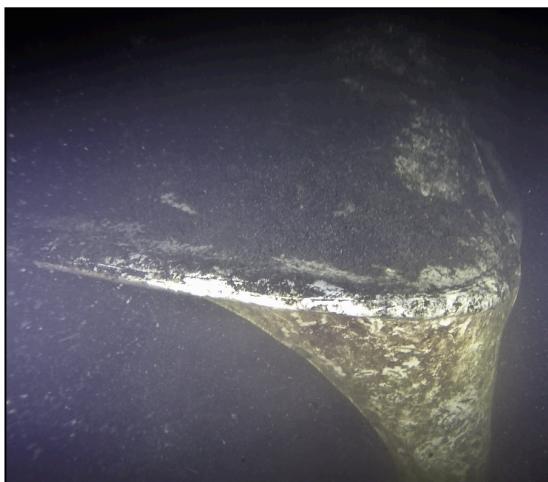
MHM's sonar image of Anomaly 17. The lack of details in the sonar image is explained by the presence of the boat's storage cover.



The bow of the Royal American Surfmaster 15 and its loose bow cover (Mark Slick).



The windshield and pass-through from the bow to the aft section of the wreck. The bow cover has torn away from the snaps on the frame (Mark Slick).



Above: The intact soft top on the starboard side where it snaps onto the windshield. The top part of the cover is white and the side section is blue (Mark Slick).

Left: The soft top held up by its frame. The aft portion of the cover has come unattached at this point but remains snapped at the transom (Mark Slick).



The starboard side amidships of the Royal American Surfmaster 15 wreck showing the broad white gunwale and red hull with a white stripe (Mark Slick).



Anomaly 17's registration number and yellow 1972-73-74 validation sticker (Mark Slick).



adsinusa.com;
craigslist.org;
globalauctionguide.com;
iboats.com;
rauctioneers.com



The frayed end of Anomaly 17's mooring line (Mark Slick).

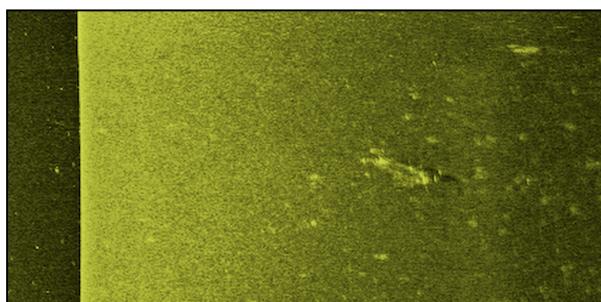


A variety of Royal American boats, mostly Surfmasters, both inboard/outboards and outboard models. None of them were manufactured in 1972.

Capsized Starcraft Wreck Site (Anomaly 43)

MHM recorded a sonar image of Anomaly 43 in August 2016 during the MSLS-1 Project and identified the Capsized Starcraft Wreck in mid-August 2017. Anomaly43's aluminum hull is 11.80 feet long and 3.20 feet at the transom; due to the position of the wreck it was not possible to measure the beam. The faux lapstrake hull has a pointed bow with an anchor roller and navigation light attached, and a towing eye is affixed to the stem. The Starcraft Wreck's gunwale has an extruded aluminum caprail and 1 set of oarlocks. The hull has a splashrail along its entirety and the keel is clearly seen along the bottom. The square transom has a motor board attached to it, apparently made of wood, and port and starboard stern castings with lifting handles are extant. The inside of the hull can be partially seen due to a Minn Kota trolling motor attached to the bow and the outboard motor at the stern; their powerheads are resting on the lake bottom and carry the weight of the wreck. The wreck's gas tank, with an Evinrude emblem, is lying a few feet beyond the stern in the silt.

Anomaly 43's hull has frames fitted inside it about every 12 inches. A rectangular live well, constructed out of plywood, is affixed to the inside port quarter behind the stern wood bench seat; 2 other benches are found forward. A mooring line is strewn throughout the wreck and a bait bucket is tied to the stern, floating in the water column. The outboard motor is a vintage blue Evinrude 7.5 HP Fleetwin model from the mid-1950s. The Starcraft Wreck's registration number is MN 6221 FB. According to DNR records she was constructed in 1975 and her last validation expired in December 1997 (John Nordby, personal communication, September 2017). This date agrees with the blue validation sticker on her hull. MHM cannot ascertain if Anomaly 43 was in use when she sank, or if she was moored at a dock and was blown off by wind. However, MHM can surmise when Anomaly 43 sank. On July 1, 1997, Wright County, along with most of Minnesota, experienced violent storms and strong winds from mid-afternoon until after midnight. Near Buffalo, between the town and Howard Lake, an F3 tornado went through with an 800-yard wide path. An hour later, Buffalo recorded 70 mph thunderstorm winds and nearby towns experienced 50-95 mph winds, as well as two F2 tornadoes near Monticello, and an F1 tornado near Waverly (NOAA 1997, 130-131). Therefore, while MHM cannot prove this theory now, future research may answer this question. Anomaly 43 will not be categorized as an archaeological site at this time, but she is a State and Federally protected maritime historical resource.



MHM's sonar image of Anomaly 43.



Anomaly 43's registration number (Mark Slick).



Above: The power head of the Minn Kota trolling motor; the shaft of the motor is holding the wreck off the lake bottom (Mark Slick).
Left: The starboard bow (Mark Slick).



Above: A mooring line in disarray and a bench (Mark Slick).
Left: The keel and hull bottom (Mark Slick).



The transom and motor (Mark Slick).



The Evinrude 7.5 HP Fleetwin (Mark Slick).

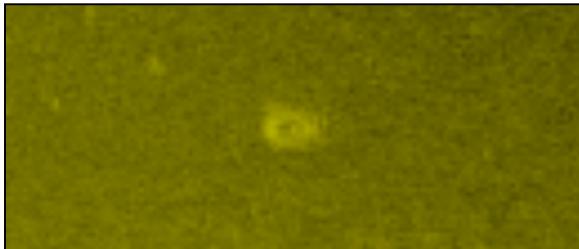


Above: The rusty gas tank (Mark Slick).
Right: An Evinrude Fleetwin that is the same age and color as the example on the wreck (ebay.com).



Wood and Metal Object, Anomaly 39

MHM recorded a sonar image of Anomaly 39 in August 2016 during the MSLS-1 Project and identified it as an object made of wood and metal in early September 2017. Anomaly 39 is comprised of twisted metal and loose wood; it may be a bench. Anomaly 39 measured 4.20 feet long by 2.20 feet wide. It is a protected maritime historical resource.



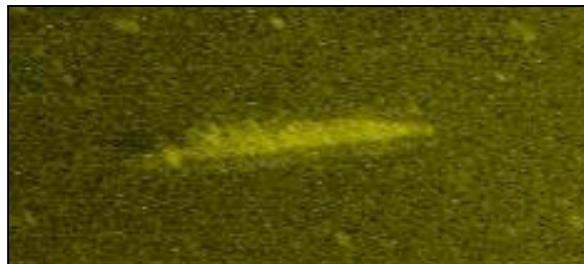
MHM's sonar image of Anomaly 39.



Anomaly 30 (Kelly Nehowig).

Anomalies 2, 27

Sonar images of Anomalies 2 and 27 were recorded during the MSLS-1 Project in August 2016. MHM interpreted Anomaly 2 as a possible overturned boat; it is an unusual bottom contour. Anomaly 27 is vegetation that resembles a small boat with an acoustical shadow.



Anomaly 2



Anomaly 27

Conclusion

MHM identified the only 7 recognized wrecks on the bottom of Lake Pulaski during the MSLNA-1 Project. Anomaly 1, the Flat Bottomed Rowboat Wreck (21-WR-203), was designed specifically for shallow water and it has a close parallel in Lake Minnetonka. These 2 wrecks are the only known watercraft in archaeological contexts constructed with sharply-raked extremely narrow bows and no frames. They stand out in the nautical archaeological record in terms of wooden boats. The Homemade Steel Boat Wreck (Anomaly 13) represents not only small boat building in steel, but the skill of many Minnesotans who manufactured their own watercraft. Working with steel and doing it well requires a great deal of skill. Two small steel wrecks in White Bear Lake are comparable to Anomaly 13, although 1 of them may be a Mullins brand and not homemade. The Capsized Pontoon Wrecks 1 and 2 (Anomalies 32 and 38) represent waterborne recreation and lake travel. Although MHM cannot identify the their makers or their models, additional historical research in the future may allow this identification. Interestingly, the Homemade Steel Boat Wreck and the Capsized Pontoon Wreck 1 lie within 10 feet of each other; no other submerged cultural resources that MHM has identified to date are in such close proximity, even sites that are connected. The Fiberglass Outboard Boat Wreck (Anomaly 36) is a nice light boat and would have been good for fishing in calm waters. Anomaly 36 also presents a maritime historical problem – incorrect registration information – that is difficult to solve. MHM may determine the make and model of Anomaly 36 in the future while conducting other research. Otherwise, the wreck's identification and story will remain untold. The Fiberglass Outboard Boat Wreck joins 7 wrecks on the bottom of Lake Minnetonka that have the wrong registration number on them, their numbers have been re-assigned to another boat – something that should not happen – or the manufacturer linked to the number is wrong. The Royal American Surfmaster 15 Wreck (Anomaly 17) is the only wreck MHM has identified that still has its boat cover attached. While the presence of the cover hindered MHM's documentation of the site, it also presents an answer to one of our most important archaeological questions: What are the circumstances of the wrecking process? With Anomaly 17, we know the boat was torn from its dock and sank sometime between 1972 and December 1974. Anomaly 17 is the first Royal American wreck identified by MHM. Lastly, the Starcraft Wreck (Anomaly 43) exhibits an incredible amount of detail, from its vintage Evinrude motor to its Minn Kota trolling motor – the first of its type identified by MHM on the bottom of any Minnesota lake. Anomaly 43 is also the first Starcraft wreck identified by MHM as well. MHM hopes to uncover the full story of the Starcraft Wreck in the future; further historical research is warranted.

The MSLNA-1 Project produced interesting and significant results investigating 29 anomalies in 3 lakes in 3 counties. MHM identified 11 wrecks, 3 maritime sites or objects, 2 'other' sites, and 1 'other' object in Lake Waconia, Lake Pulaski, and Prior Lake. Of the 11 wrecks, MHM acquired Minnesota Archaeological Site Numbers for 3 of them; 2 in Prior Lake and 1 in Lake Pulaski. Two of these wrecks are small wooden boats, similar in construction and design to 15 wrecks identified by MHM in Lake

Minnetonka.⁵ As more data is accumulated and additional nautical archaeological sites identified and analyzed, to date submerged cultural resources from 9 suburban lakes⁶ can be compared and contrasted. Attributes noted in certain wrecks may be indicative of a particular boat builder or at least assigned to a particular type or time period. Further, to date MHM has identified 4 pontoon boat wrecks in 3 lakes; of these sites, 3 of them are capsized (Lake Pulaski, Lake Minnetonka) and 1 is upright (Lake Waconia).

The wrecking processes responsible for the creation of Minnesota's submerged cultural resources have produced a variety of underwater sites. Identifying, comparing, and associating these new sites in Lake Waconia, Lake Pulaski, and Prior Lake with known sites increases our understanding of the historical context within which these cultural resources operated or were exploited by Minnesotans. Future studies will greatly enhance our shared maritime history through the recognition of submerged cultural resources and the stories behind their construction and disposition on the bottoms of these lakes studied to date. The diversity of nautical, maritime, and underwater sites so far identified by MHM in Minnesota's lakes are tangible examples of the rich maritime history of the area. Through research, diving on wrecks and anomalies to collect pertinent data, and ensuring that the collected information is accessible by the public, MHM will continue to investigate Minnesota's submerged cultural resources into the future. MHM continues to re-examine recorded sonar footage from completed remote sensing surveys. Targeted re-scanning has occurred in several lakes using knowledge gained from the comparison of anomalies that have proven to be wrecks or other submerged cultural resources in past projects. With improved technology, future scanning projects will produce clearer data. The results of the MSLNA-1 Project summarized above is connected to all the work that came before⁷ and will come after its completion. At this point, watercraft located Minnesota's suburban lakes represent nearly 1,000 years of Minnesota's maritime history and nautical archaeology. In the historic period, the known wrecks represented in these lakes span over 140 years of local maritime culture. It is clear – even through this Phase 1 pre-disturbance nautical archaeological investigation – that the types of sites that exist in Minnesota's suburban lakes documented to date are diverse, archaeologically and historically significant, and worthy of great attention.

⁵See MHM's *Lake Minnetonka Nautical Archaeology Project 1-7 Reports* (2012-2017) for more information.

⁶To date, MHM has completed sonar surveys and nautical archaeological projects in Lake Elmo, Lake Johanna, Lake Minnetonka, Lake Pulaski, Lake Sylvia, Lake Waconia, Medicine Lake, Prior Lake, and White Bear Lake.

⁷See MHM's *Minnesota Suburban Lakes Survey Project Report* for more information.

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